

tentatively classified as a marker, perhaps delineating a former transportation route, such as a continuation of Site 23466, located on the north side of the *pu'u*.

The mound is roughly piled with small boulders and large cobbles. It is 1.6 m in diameter and 0.6 m high (maximum). The stick placed in the center of the mound is well-weathered, suggesting some antiquity.

7.0 LABORATORY RESULTS

7.1 METHODS

A master bag list was maintained in the field for all collected materials. The materials were bagged individually by type (e.g. bone, lithics, and charcoal) or as unsorted bulk materials and assigned sequential bag numbers. The bag list was entered in a master database (Microsoft Access) and all resulting analysis tables were linked with the original provenience data using the bag numbers. All Access tables were converted to Microsoft Excel spreadsheets for tabulation purposes and inclusion in this report.

Artifacts were assigned artifact numbers (Art.) using the bag number as the primary number and sequential decimal numbers to distinguish multiple artifacts from same bag numbers. For example: two artifacts from Bag No. 1 will be assigned Art No. 1.1 and Art No. 1.2, respectively.

7.2 ARTIFACTS

Over 3,671 traditional artifacts were collected from the project sites, including 158 tools (Table 17) and approximately 3,496 pieces of non-modified lithic debitage (Table 18). The artifacts were collected from habitation sites in three lava tubes (Sites 19490, 23625 and 23626) and a surface enclosure (Site 23456). The abundance (78%) and greatest variety of artifacts were recovered from a 1 m by 1 m unit at Site 19490.

The tools are composed of basalt, volcanic glass, mammal and bird bone, and marine shell, exclusively large *'opihi* shells (*Cellana Sandwicensis* sp.). Artifact functions are suggested using ethnographic sources and comparisons with previously reported archaeological data from the Saddle and Mauna Kea region. Each artifact type is discussed by material below.

7.2.1 Lithics

The lithic artifacts include tools and lithic debitage from basalt and volcanic glass. Although the source of the basalt material is presently unknown, the volcanic glass, typically characterized by poor-quality basalt with a thin veneer of volcanic glass, was likely derived from nearby quarries on the k4 Flow. The lithic tools are classified by morphological type and possible function (see Table 16) and discussed by material type below.

Basalt Tools

A total of 65 basalt tools were collected from the sites, including 2 edge-altered flakes, 2 edge-altered flakes with polish, 19 flakes with polish, 36 groundstone tools, one flaked tool, and five manuports humanly carried to the site.

The edge-altered flakes are defined by complete, broken or fragmented flakes with one or more edges retouched or utilized probably as cutters or scrapers. The flakes with polished surfaces occur on one or two facets. Most of these flakes are composed of fine-grained basalt suggesting they were taken off some type of polished tool, such as an adze, *ulu maika* or mirror. Other flakes

Table 17. Indigenous Artifact Catalog

Site No.	Art	Material	Type	Possible Function	Condition	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)	Comments	Faunal ID
19490	093.26	volcanic glass	core	core	complete	5.39	2.58	1.90	27.9		
19490	067.03	volcanic glass	core	core reduction	complete	4.075	3.081	2.554	34.1		
19490	093.22	volcanic glass	core	core reduction	complete	3.52	4.27	1.53	33.0		
19490	093.21	volcanic glass	core	core reduction	complete	3.65	2.94	2.28	28.2		
19490	093.23	volcanic glass	core	core reduction	broken	3.58	3.41	2.32	34.2	battered edge	
19490	093.19	volcanic glass	core	core reduction	complete	3.81	3.16	2.40	35.5		
19490	093.18	volcanic glass	core	core reduction	complete	3.80	3.71	1.98	42.8		
19490	093.24	volcanic glass	core	core reduction	complete	2.94	2.33	2.38	25.2		
19490	093.28	volcanic glass	core	core reduction	broken	1.80	3.36	1.52	10.0		
19490	093.31	volcanic glass	core	core reduction	broken	2.31	1.23	1.12	5.6		
19490	097.09	volcanic glass	core	core reduction	fragment	4.363	2.816	2.326	36.7		
19490	104.06	volcanic glass	core	core reduction	complete	4.149	2.446	2.635	31.7		
19490	104.05	volcanic glass	core	core reduction	complete	4.616	2.591	1.721	22.3		
19490	093.20	volcanic glass	core	core/scrapper	complete	4.10	2.94	2.84	30.5	worked, utilized edges	
19490	093.25	volcanic glass	core	core/scrapper/cutter	complete	2.36	3.35	1.79	11.5	worked/utlized edge	
19490	049.01	volcanic glass	core	quarry raw material	complete	5.95	5.85	3.744	167.4		
19490	043.01	volcanic glass	edge altered flake	blade	broken	4.51	1.585	.867	4.8		
19490	046.01	volcanic glass	edge altered flake	blade	complete	3.116	1.022	.806	2.4		
19490	067.02	volcanic glass	edge altered flake	blade flake	fragment	1.52	0.929	0.192	0.3		
19490	093.13	volcanic glass	edge altered flake	blade flake	complete	6.02	1.63	1.25	9.4	utilized	
19490	093.17	volcanic glass	edge altered flake	blade flake	fragment	3.97	1.75	0.47	4.1	distal end broken off	
19490	093.16	volcanic glass	edge altered flake	blade flake	broken	4.5	1.73	1.61	4.9		
19490	093.15	volcanic glass	edge altered flake	blade flake	broken	6.30	2.30	1.15	14.3	proximal tip broken off	
19490	093.14	volcanic glass	edge altered flake	blade flake	fragment	5.66	1.95	1.02	12.1		
19490	093.12	volcanic glass	edge altered flake	blade flake	complete	5.61	2.17	0.92	8.1	poss. utilized	
19490	093.11	volcanic glass	edge altered flake	blade flake	complete	6.40	2.03	0.94	9.6		
19490	093.10	volcanic glass	edge altered flake	blade flake	fragment	3.27	1.68	0.40	2.4	prox & dist ends broken	
19490	093.09	volcanic glass	edge altered flake	blade flake	fragment	3.01	1.22	0.75	3.3	prox & dist ends broken	
19490	093.08	volcanic glass	edge altered flake	blade flake	fragment	3.5	1.11	0.58	2.7	prox & dist ends broken	
19490	093.07	volcanic glass	edge altered flake	blade flake	fragment	3.38	1.14	0.57	3.0	prox & dist ends broken	
19490	093.06	volcanic glass	edge altered flake	blade flake	fragment	3.41	1.40	0.70	3.1	prox & dist ends broken	
19490	093.04	volcanic glass	edge altered flake	blade flake	fragment	4.38	1.55	0.76	5.3	prox & dist ends broken	
19490	093.02	volcanic glass	edge altered flake	blade flake	broken	5.51	2.31	1.08	15.6	prox & dist ends broken	
19490	093.01	volcanic glass	edge altered flake	blade flake	fragment	6.10	2.63	0.94	15.1	prox & dist ends broken	
19490	093.05	volcanic glass	edge altered flake	blade flake	fragment	4.10	1.60	0.81	4.8	prox & dist ends broken	

Table 17 (Continued)

Site No.	Art	Material	Type	Possible Function	Condition	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)	Comments	Faunal ID
19490	100.01	volcanic glass	edge altered flake	blade flake	fragment	5.786	2.502	0.812	10.5	use-wear on 2 edges	
19490	104.03	volcanic glass	edge altered flake	blade flake	broken	5.105	1.499	8.63	3.8		
19490	104.02	volcanic glass	edge altered flake	blade flake	fragment	5.489	1.34	1.017	6.3		
19490	093.03	volcanic glass	edge altered flake	blade flake	fragment	5.55	2.73	0.94	13.5	distal end broken	
19490	093.27	volcanic glass	edge altered flake	scraper	complete	3.81	4.27	1.97	25.2		
19490	055.03	volcanic glass	edge altered flake	scraper/cutter	fragment	3.25	1.14	0.786	3.9		
19490	055.04	volcanic glass	edge altered flake	scraper/cutter	fragment	3.075	1.11	0.731	2.8		
19490	055.02	volcanic glass	edge altered flake	scraper/cutter	fragment	4.044	2.142	1.316	12.7		
19490	055.01	volcanic glass	edge altered flake	scraper/cutter	fragment	2.066	1.003	0.784	1.4		
19490	092.01	basalt	edge altered flake	scraper/cutter	broken	4.28	3.33	1.54	15.5		
19490	093.29	volcanic glass	edge altered flake	scraper/cutter	complete	3.44	3.61	1.40	13.8		
19490	097.07	volcanic glass	edge altered flake	scraper/cutter	broken	1.192	1.88	0.258	1.3		
19490	097.08	volcanic glass	edge altered flake	scraper/cutter	complete	2.388	1.807	0.402	1.8		
19490	099.01	basalt	edge altered flake	scraper/cutter	broken	3.644	3.993	1.628	25.9	use-wear on 1 edge	
19490	104.04	volcanic glass	edge altered flake	scraper/cutter	fragment	4.548	3.215	1.5	22.9		
19490	104.01	volcanic glass	edge altered flake	scraper/cutter	complete	1.61	4.186	1.211	11.0	cortex ropey lava	
19490	112.01	volcanic glass	edge altered flake	scraper/cutter	fragment	3.282	1.936	0.468	2.5		
19490	048.01	volcanic glass	edge altered flake	scraper/cutter	broken	5.516	3.354	1.218	25.0		
19490	093.30	volcanic glass	edge altered flake	utilized flake	complete	6.22	2.07	0.70	8.6	broken in 2 pieces	
19490	050.01	basalt	edge altered flake with polish	adze fragment	fragment	3.984	1.812	1.032	7.9	polish on 2 sides	
19490	050.06	basalt	edge altered flake with polish	undetermined	fragment	2.002	1.092	0.606	1.0	sharpened edge	
19490	113.06	basalt	flake with ground surface	groundstone fragment	?	1.976	1.693	0.394	1.6	heat exposed	
19490	113.01	basalt	flake with polish	adze fragment	fragment	0.976	0.42	0.362	0.1	polished sides make 90-degree angle	
19490	097.06	basalt	flake with polish	hammerstone/birdcooking stone	fragment	1.23	1.02	0.19	0.3	from groundstone	
19490	097.05	basalt	flake with polish	hammerstone/birdcooking stone	fragment	1.92	1.79	0.90	3.0		
19490	050.03	basalt	flake with polish	scraper/drill	fragment	2.114	1.761	0.37	2.5		
19490	056.02	basalt	flake with polish	undetermined	fragment	1.50	1.55	0.358	0.8		
19490	056.01	basalt	flake with polish	undetermined	fragment	2.056	1.341	0.476	1.3		
19490	067.01	basalt	flake with polish	undetermined	broken	3.537	2.51	0.523	4.2		

Table 17 (Continued)

Site No.	Art	Material	Type	Possible Function	Condition	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)	Comments	Faunal ID
19490	092.05	basalt	flake with polish	undetermined	fragment	3.01	1.41	0.51	2.6	from groundstone, polish from use	
19490	092.06	basalt	flake with polish	undetermined	fragment	3.04	1.17	0.47	1.5		
19490	106.02	basalt	flake with polish	undetermined	broken	1.092	1.286	0.442	0.6	from groundstone, polish	
19490	106.01	basalt	flake with polish	undetermined	broken	3.30	2.182	0.592	4.3	surface polished with striations	
19490	113.02	basalt	flake with polish	undetermined	broken	1.434	1.16	0.271	0.5	with striations	
19490	113.05	basalt	flake with polish	undetermined	fragment	1.847	1.431	0.372	0.9	from groundstone	
19490	113.03	basalt	flake with polish	undetermined	fragment	1.118	0.939	0.295	0.5	use-wear polish	
19490	113.04	basalt	flake with polish	undetermined	fragment	1.063	0.76	0.133	0.2	use-wear	
19490	050.07	basalt	flake with polish	undetermined	fragment	1.1	0.474	0.466	0.3	polish on 3 sides	
19490	050.04	basalt	flake with polish	undetermined	fragment	1.891	1.485	0.314	1.1		
19490	050.02	basalt	flake with polish	undetermined	fragment	3.471	1.781	0.38	3.7		
19490	050.05	basalt	flake with polish	undetermined	fragment	2.235	1.276	0.15	0.6		
19490	068.01	basalt	groundstone	abrader	broken	4.072	3.074	2.012	28.3	1 flat surface	
19490	068.05	basalt	groundstone	abrader	broken	2.31	1.35	0.83	3.5		
19490	068.04	basalt	groundstone	abrader	broken	3.27	3.05	2.04	35.4	1 ground surface	
19490	112.04	basalt	groundstone	abrader	broken	2.02	2.124	2.565	11.3	polish from use	
19490	068.03	basalt	groundstone	abrader/hammerstone	broken	4.28	4.15	3.27	59.5		
19490	068.02	basalt	groundstone	bird cooking stone	broken	5.438	4.576	3.012	62.2		
19490	044.01	basalt	groundstone	bird cooking stone	broken	2.778	2.208	1.822	21.7	heat exposed	
19490	056.03	basalt	groundstone	birdcooking stone	broken	3.748	2.938	1.286	13.9		
19490	056.04	basalt	groundstone	birdcooking stone	broken	2.171	2.192	1.722	5.4		
19490	091.06	basalt	groundstone	birdcooking stone	broken	3.327	3.552	2.296	49.0		
19490	091.05	basalt	groundstone	birdcooking stone	broken	3.348	1.718	1.286	15.7		
19490	092.04	basalt	groundstone	birdcooking stone	broken	2.72	3.0	1.06	13.7	polish on 2 sides	
19490	096.01	basalt	groundstone	birdcooking stone	broken	7.81	3.07	2.67	110.8	polish	
19490	097.04	basalt	groundstone	birdcooking stone	broken	3.49	2.52	2.33	27.2	heat exposed	
19490	102.01	basalt	groundstone	birdcooking stone	broken	7.942	2.202	1.947	76.6	heat exposed, flat on 2 sides, bullet shaped	
19490	109.01	basalt	groundstone	birdcooking stone	broken	3.056	2.857	2.723	31.6	waterworn/heat exposed	
19490	111.01	basalt	groundstone	birdcooking stone	broken	6.512	3.047	1.446	42.6	heat exposed/ poss. bullet-shaped	

Table 17 (Continued)

Site No.	Art	Material	Type	Possible Function	Condition	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)	Comments	Faunal ID
19490	112.03	basalt	groundstone	birdcooking stone	broken	2.656	3.17	1.021	11.8		
19490	106.04	basalt	groundstone	grinding stone	complete	9.756	2.761	3.341	95.9	1 polished flat surface/usewear polish	
19490	091.01	basalt	groundstone	hammerstone	broken	5.308	4.031	1.288	44.1	heat exposed	
19490	091.02	basalt	groundstone	hammerstone	broken	4.408	3.524	2.808	74.5		
19490	091.03	basalt	groundstone	hammerstone	broken	4.083	3.092	1.602	25.5	poss. heat exposed	
19490	092.02	basalt	groundstone	hammerstone	broken	6.01	5.38	2.25	81.9	poss. finger indent	
19490	092.03	basalt	groundstone	hammerstone	broken	4.60	4.38	2.90	41.9	poss. Polish from use	
19490	097.03	basalt	groundstone	hammerstone	broken	3.73	3.14	2.05	32.1		
19490	106.03	basalt	groundstone	hammerstone	fragment	5.872	3.44	2.712	64.3	bird cooking stone shape frags	
19490	85.1	basalt	groundstone	hammerstone/abrader	complete	35.1	37.7	34.1	64.0		
19490	091.04	basalt	groundstone	hammerstone/abrader	broken	6.99	3.153	2.113	79.2	1 flat surface	
19490	097.10	basalt	groundstone	hammerstone/abrader	broken	5.172	2.764	1.651	30.0	1 flat surface	
19490	097.02	basalt	groundstone	hammerstone/abrader	broken	4.67	3.43	2.25	47.3		
19490	097.01	basalt	groundstone	hammerstone/abrader	broken	4.38	2.74	1.86	29.7	polish from use	
19490	097.11	basalt	groundstone	hammerstone/birdcooking stone		3.355	2.686	1.634	20.8	tapered at end	
19490	64.1	volcanic glass	manuport	abrader raw material	NA	115.1	56.4	18.1	159.4		
19490	95.1	basalt	manuport	hammerstone	complete	94.3	80.0	72.7	572.4		
19490	112.02	basalt	manuport	hammerstone	broken	6.09	3.485	2.216	62.3		
19490	106.5	basalt	manuport	manuport	fragment	64.5	31.0	25.2	59.9		
19490	106.16	bone	modified bone	Needle	tool	2.972	0.248	0.23	0.1	poss. use-wear polish.	medium bird
19490	112.14	bone	modified bone	Needle	Complete	7.652	0.416	0.333	0.4	use-wear polish	medium procellariid
19490	113.14	bone	modified bone	Needle	Complete	5.747	0.412	0.488	0.7	diagonally cut to point.	medium bird
19490	093.37	bone	modified bone	Needle/Pick/Awl	Complete	5.364	0.397	0.323	0.2	fragment cut to point	medium procellariid
19490	093.36	bone	modified bone	Needle/Pick/Awl	Complete	6.221	0.477	0.478	0.6	fragment cut to point	medium procellariid
19490	093.38	bone	modified bone	Needle/Pick/Awl	Complete?	4.796	0.478	0.461	0.5	diagonally cut to point	medium procellariid
19490	106.12	bone	modified bone	Needle/Pick/Awl	Complete	6.436	1.13	0.689	1.1	distal end cut to point	medium procellariid
19490	106.13	bone	modified bone	Needle/Pick/Awl	Fragment	5.6	1.16	0.76	0.9	proximal end diagonally cut to point; striations visible.	medium procellariid

Table 17 (Continued)

Site No.	Art	Material	Type	Possible Function	Condition	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)	Comments	Faunal ID
19490	106.15	bone	modified bone	Needle/Pick/Awl	Tip Complete	6.849	0.65	0.428	1.2	diagonally cut to point with striation marks; use-wear polish.	medium bird
19490	113.17	bone	modified bone	Needle/Pick/Awl	Complete	6.868	0.538	0.711	1.4	diagonally cut to point with striation marks; use-wear	medium procellariid
19490	113.16	bone	modified bone	Needle/Pick/Awl	Complete	6.084	0.702	778	0.8	Distal end diagonally cut to point; use-wear	medium procellariid
19490	113.15	bone	modified bone	Needle/Pick/Awl	Complete	7.988	0.446	0.43	1.0	Proximal end diagonally cut to point; use-wear polish	medium procellariid
19490	061.02	bone	modified bone	undetermined	Fragment	2.834	0.653	0.322	0.2	Limb shaft fragment; cut mark; poss. polished, calcined	medium bird
19490	097.19	bone	modified bone	undetermined	Fragment	5.633	0.29	0.202	0.3	Radius shaft fragment; worked at one end	medium bird
19490	106.17	bone	modified bone	undetermined	Complete		0.415	0.332	0.4	Distal end diagonally cut with tip cut square. Partially charred.	Medium procellariid
19490	106.18	bone	modified bone	undetermined	Fragment	8.146	0.408	0.308	0.5	Possible diagonal cut at distal end.	Medium procellariid
19490	106.14	bone	modified bone	undetermined	Fragment	4.73	0.674	0.559	0.7	Distal end broken	medium procellariid
19490	113.20	bone	modified bone	undetermined	Fragment	6.242	0.591	0.352	0.3	Proximal end diagonally cut to point; use-wear polish	medium procellariid
19490	113.21	bone	modified bone	undetermined	Complete	6.992	0.228	0.342	0.4	Distal end diagonally cut; use-wear polish	medium procellariid
19490	113.22	bone	modified bone	undetermined	Complete	4.826	0.344	0.454	0.2	Distal end diagonally cut to point; use-wear	medium procellariid
19490	113.19	bone	modified bone	undetermined	Complete	7.669	0.284	0.306	0.5	Distal end diagonally cut; use-wear	medium procellariid

Table 17 (Continued)

Site No.	Art	Material	Type	Possible Function	Condition	Length (cm)	Width (cm)	Thickness (cm)	Weight (gm)	Comments	Faunal ID
19490	113.18	bone	modified bone	undetermined	Complete	7.544	0.294	0.272	0.5	Distal end diagonally cut with tip cut square; use-wear	medium procellariid
19490	093.39	bone	modified canine tooth	Pendant	Broken	3.07	0.768	0.466	0.8	Drilled at root end; possibly worked; reconstructed by Ziegler	<i>Canis familiaris</i>
19490	079.01	shell	modified shell	scraper	complete	5.07	4.0	1.378	61.1		<i>Cellena sanwicensis</i>
19490	086.01	shell	modified shell	scraper	complete	5.03	3.853	1.186	4.9		<i>Cellena sanwicensis</i>
19490	088.01	shell	modified shell	scraper	broken	NA	NA	NA	13.2	broken in bag	<i>Cellena sanwicensis</i>
19490	090.01	shell	modified shell	scraper	fragment	3.055	1.342	0.921	0.9		<i>Cellena sanwicensis</i>
19490	090.02	shell	modified shell	scraper	fragment	3.013	1.147	0.741	0.9		<i>Cellena sanwicensis</i>
19490	105.03	shell	modified shell	scraper	complete	5.054	3.953	1.327	5.5		<i>Cellena sanwicensis</i>
19490	105.02	shell	modified shell	scraper	complete	5.401	4.31	1.424	6.9		<i>Cellena sanwicensis</i>
19490	105.01	shell	modified shell	scraper	complete	5.069	3.98	1.452	7.4		<i>Cellena sanwicensis</i>
19490	107.01	shell	modified shell	scraper	complete	4.566	3.856	1.153	4.1		<i>Cellena sanwicensis</i>
19490	108.01	shell	modified shell	scraper	complete	4.645	3.356	0.966	3.0		<i>Cellena sanwicensis</i>
19490	110.01	shell	modified shell	scraper		5.206	4.981	1.398	7.6		<i>Cellena sanwicensis</i>
19490	112.13	shell	modified shell	scraper	complete	3.382	2.798	0.79	1.8		<i>Cellena sanwicensis</i>
19490	112.12	shell	modified shell	scraper	broken	3.69	2.964	0.835	1.7		<i>Cellena sanwicensis</i>
19490	063.01	shell	modified shell	scraper/pendant	complete	5.302	4.819	1.72	11.1	perforated	<i>Cellena sanwicensis</i>
23456	016.01	basalt	groundstone	hammerstone/bird cooking stone	fragment	7.398	2.972	2.457	84.0		
23456	017.01	basalt	groundstone	hammerstone/bird cooking stone	broken	6.806	2.806	1.70	47.5	heat exposed	
23456	018.01	basalt	groundstone	hammerstone/bird cooking stone	broken	4.40	3.302	2.182	53.5	heat exposed, ground	
23625	002.01	basalt	groundstone	hammerstone/bird cooking stone	broken	4.517	4.042	3.606	82.1	heat exposed	
23626	024.01	volcanic glass	edge altered flake	scraper/cutter	fragment	4.057	1.87	1.222	9.1		
23626	028.01	volcanic glass	edge altered flake	scraper/cutter	fragment	3.481	2.194	1.072	8.8		
23626	024.02	volcanic glass	edge altered flake	scraper/cutter/blade	fragment	4.577	1.364	.652	2.9		
23626	022.01	basalt	groundstone	bird cooking stone	broken	5.391	3.756	2.665	52.1	heat exposed	
23626	034.01	basalt	groundstone	bird cooking stone	broken	3.514	2.991	1.462	23.0		

Table 18 (Continued)

Site No.	Fea	TU	Layer	SF	Level	Depth (cmbs)	Material	Flake	Condition	Count	0-10 (mm)	10-20 (mm)	20-40 (mm)	40-60 (mm)	60-80 (mm)	>80 (mm)	Comments
19490	C	1		1	3	20-30/35	Volcanic glass	Flake	Broken	66	0	45	21	0	0	0	
19490	C	1		1	3	20-30/35	Volcanic glass	Flake	Fragment	83	0	60	23	0	0	0	
19490	C	1		1	4	30-40	Volcanic glass	Flake	Complete	4	0	0	4	0	0	0	
19490	C	1		1	4	30-40	Volcanic glass	Flake	Broken	6	0	1	5	0	0	0	
19490	C	1		1	4	30-40	Volcanic glass	Flake	Fragment	27	0	0	27	0	0	0	
19490	C	1	III		1	20-30	Volcanic glass	Flake	Complete	3	0	0	3	0	0	0	
19490	C	1	III		1	20-30	Volcanic glass	Flake	Fragment	10	0	5	3	2	0	0	
19490	C	1	III		1	20-30	Volcanic glass	Flake	Broken	6	0	0	5	1	0	0	
19490	C	1	III		2	30-40	Volcanic glass	Flake	Complete	3	0	0	3	0	0	0	
19490	C	1	III		2	30-40	Volcanic glass	Flake	Broken	6	0	0	6	0	0	0	
19490	C	1	III		3	40-50	Volcanic glass	Flake	Complete	1	0	0	1	0	0	0	
19490	C	1	III		3	40-50	Volcanic glass	Flake	Broken	1	0	0	1	0	0	0	
19490	C	1	III		3	40-50	Volcanic glass	Flake	Fragment	1	0	0	1	0	0	0	
19490	C	1	III		1	20-30	Volcanic glass	Other	NA	10	0	0	0	5	4	1	unmodified resource
19490	C	1		1	1	0-10	Volcanic glass	Shatter	NA	114	76	28	6	2	2	0	
19490	C	1		1	2	10-20	Volcanic glass	Shatter	NA	79	33	24	20	2	0	0	
19490	C	1		1	3	20-30/35	Volcanic glass	Shatter	NA	1184	1060	90	30	4	0	0	0-10mm estimated
19490	C	1		1	4	30-40	Volcanic glass	Shatter	NA	255	150	85	20	0	0	0	0-10mm estimated
19490	C	1		1	5	40-50	Volcanic glass	Shatter	NA	132	75	50	7	0	0	0	
19490	C	1	II		1	15-20	Volcanic glass	Shatter	NA	3	0	2	0	1	0	0	
19490	C	1	III		1	20-30	Volcanic glass	Shatter	NA	444	330	81	29	3	1	0	total & 0-10mm estimated
19490	C	1	III		2	30-40	Volcanic glass	Shatter	NA	152	100	36	14	2	0	0	total & 0-10mm estimated
19490	C	1	III		3	40-50	Volcanic glass	Shatter	NA	129	125	1	3	0	0	0	total & 0-10mm estimated
23626	1	1		1	2	12/23-30	Volcanic glass	Flake	Fragment	6	2	4	0	0	0	0	
23626	2	2	I		1	0-12	Volcanic glass	Flake	Broken	1	0	0	1	0	0	0	
23626	1	1	II		1	12/23-30	Volcanic glass	Flake	Fragment	5	0	1	4	0	0	0	
23626	1	1		1	2	16	Volcanic glass	Shatter	NA	1	0	0	1	0	0	0	
23626	1	1		1	2	12/23-30	Volcanic glass	Shatter	NA	21	17	4	0	0	0	0	